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Attorney Docket No.: 2001P08145US

**REMARKS**

Upon entry of the instant Amendment, claims 1-5, 8-18, and 22-32 are pending. Claims 6-7 and 19-21 were withdrawn subject to a restriction requirement. Claim 5 has been amended to correct an antecedent basis problem. Claims 1, 2, 22, 25, and 31 have been amended to more particularly point out Applicants invention.

Claim 5 was rejected under 35 U.S.C. 112, second paragraph, because of an alleged lack of sufficient antecedent basis. Claim 5 has been amended to correct the lack of antecedent basis problem. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 2 and 8 were objected to because of the limitation "determining noise is present if the amplitude crosses a threshold." The Examiner's attention is directed to FIG. 11 and FIG. 12, in which noise may be determined to be present if the amplitude crosses the threshold.

Claims 1-2, 9-11, 25-26 have been rejected under 35 U.S.C. 102(b) as being anticipated by Pelaez-Ferrigno, U.S. Patent No. 5,577,161 ("Pelaez"). In order for there to be anticipation, each and every element of the claimed invention must be present in a single, prior reference. Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pelaez.

As discussed in the Specification, and in response to the previous Official Action, embodiments of the present invention relate to innovative techniques for enhancing the sound quality of computer telephony systems. In general, digital signals including telephony sounds are converted from the time domain to the frequency domain. If noise is detected in the frequency domain conversion of the digital signals, the noise is removed utilizing a filter. The noise detection and filtering are preferably performed in software, which can provide the advantages that the enhanced audio quality comes at a relatively inexpensive cost and can be flexible for very diverse environments.

Claim 1 has been amended to recite "detecting whether noise is present in the frequency domain conversion of the digital signals by examining amplitudes in a plurality of frequency bands;" and Claim 25 has been amended to recite "detecting whether noise is present in the frequency domain conversion of the digital signals for a

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first specific time period by examining amplitudes in a plurality of frequency bands." In contrast, Pelaez provides for, inter alia, detecting speech and non-speech sections of a signal. To do so, Pelaez segments a signal in the time domain and then a spectral envelope. If the spectral envelope is below a threshold,  $V_t$ , then the signal is determined to be non-speech. However, Pelaez does not appear to examine a frequency domain representation at a plurality of frequency bands to determine a presence or absence of noise, as generally recited in the claims at issue. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claim 1 has been rejected under 35 U.S.C. 102(e) as being anticipated by Mori, U.S. Patent No. 6,205,421 ("Morii"). In order for there to be anticipation, each and every element of the claimed invention must be present in a single, prior reference. Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Morii. In particular, claim 1 recites, inter alia, "receiving digital signals including telephony sounds" and "detecting whether noise is present in the frequency domain conversion of the digital signals. . . ; and applying a filter to remove the noise if noise was detected in the frequency domain conversion of the digital signals." In contrast, the method shown in FIG. 4 of Morii assumes that the noise signal  $S_n$  is present and already separate from the voice signal  $S_s$  before either is (separately) Fourier transformed at separate units 123, 127, respectively. Thus, at Col. 4, lines 8-10, Morii states "In this case, any speech signal is not included in the noise signals  $S_n$ ." Because Morii does not provide for detecting whether noise is present in a frequency domain conversion of a speech signal, the Examiner is respectfully requested to reconsider and withdraw the rejection..

Claims 1 and 25 have been rejected under 35 U.S.C. 102(e) as being anticipated by Pastor et al., U.S. Patent No. 6,445,801 ("Pastor"). In order for there to be anticipation, each and every element of the claimed invention must be present in a single, prior reference. Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pastor. Claim 1 recites "detecting whether noise is present in the frequency domain conversion of the digital signals;" claim 25 recites "detecting whether noise is present in the frequency domain conversion of the digital

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signals for a first specific time period." As discussed above, aspects of the present invention relate to detecting whether noise is present in a frequency domain conversion of a signal. In contrast, like Morii, Pastor provides a noise model prior to any frequency domain conversion. Thus, as shown in FIG. 2, a model of the noise is prepared at 1, and its spectral density is determined at 2; in contrast, the speech signal spectral density is modeled at 3, in the "parallel branch." Because Pastor does not provide for detecting whether noise is present in a frequency domain conversion of a speech signal, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 12-13, 15-16, 18, 22, 27, and 29-30 have been rejected under 35 U.S.C. 103 as being unpatentable over Pelaez in view of Paludan-Mueller, U.S. Patent Application Publication No. 20020118851 ("Paludin"). Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pelaez or Paludan, either singly or in combination.

Claim 12 recites "detecting whether noise is present in the frequency domain conversion of the digital signals if the amplitudes of sounds in first and second bands in the frequency domain conversion of the digital signals are substantially the same;" claim 16 recites "detecting whether noise is present in the frequency domain conversion of the digital signals if the amplitude of sounds in a middle band exceed the amplitude of sounds in low and high bands by a predetermined amount;" and claim 27 recites "computer code that detects whether noise is present in the frequency domain conversion of the digital signals if the amplitude of sounds in a middle band exceed the amplitude of sounds in low and high bands by a predetermined amount."

The failure of Pelaez to teach detecting noise from an analysis of frequency bands has been discussed above. Paludan is relied on for allegedly teaching comparing sounds in a first band to sounds in a second band. Applicants respectfully disagree. While Paludan provides high, intermediate, and low frequency bands, each is analyzed independently; there is never any comparison between noise or signal levels in, e.g., plural bands (as recited, for example, in claims 12, 16, and 27). That is, for example, in Paludan, the amplitude of one band is never compared to that of one or more of the other bands. Each is handled individually. Because neither Pelaez nor

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Paludan perform such a comparison, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claim 22 has been amended to recite "detecting whether noise is present in the frequency domain conversion of the digital signals if the amplitude of sounds in a first band in the frequency domain conversion of the digital signals cross a threshold over a time interval" and "and replacing at least a portion of the noise with comfort noise." Applicants respectfully submit that neither reference appears to relate to replacing noise with "comfort noise." As such, the Examiner is respectfully requested to reconsider and withdraw the rejection

Claims 3-4 and 8 have been rejected under 35 U.S.C. 103 as being unpatentable over Pelaez in view of Paludan. Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pelaez or Paludan, either singly or in combination. These claims are similar to those discussed above. For similar, reasons, Applicants believe these claims, too, are allowable.

Claims 5, 14, 17 and 28 have been rejected under 35 U.S.C. 103 as being unpatentable over Pelaez in view of Paludan and further in view of Harris et al., U.S. Patent No. 4,255,620 ("Harris") or Fielder, U.S. Patent No. 5,752,225 ("Fielder"). Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pelaez, Paludan, Harris, or Fielder, either singly or in combination.

These claims depend from claims 4, 12, 16, and 27, respectively. Pelaez and Paludan have been discussed above with regard to the base claims and comparing amplitudes in a plurality of bands. Harris and Fielder are relied on merely for allegedly dividing a speech signal into sub-bands. However, like Pelaez and Paludan, these references do not appear to relate to detecting if noise is present by examining or comparing amplitudes in a plurality of bands. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 31-32 have been rejected under 35 U.S.C. 103 as being unpatentable over Pelaez in view of Bartkowiak, U.S. Patent No. 6,711,540 ("Bartkowiak"). Applicants respectfully submit that the claimed invention is not taught, suggested, or implied by Pelaez or Bartkowiak, either singly or in combination. Claim 31 has been

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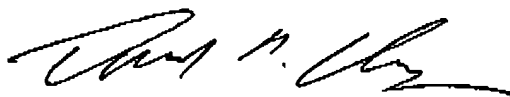
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amended to recite "detecting whether noise is present in the frequency domain conversion of the digital signals by comparing amplitudes of a plurality of frequency bands of the digital signals." As discussed above, neither Pelaez nor Paludan relate to such comparing. Bartkowiak relates to extracting signals of known frequency from time domain frame portions and thus does not relate to such comparing. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 23 and 24 have been rejected under 35 U.S.C. 103 as being unpatentable over Paludan, Pelaez and Bartkowiak. These references have been discussed above. For similar reasons, Applicants respectfully submit that these claims, too, are allowable.

For all of the above reasons, Applicants respectfully submit that the application is in condition for allowance, which allowance is earnestly solicited. If any fees are due in connection with the filing of this amendment, the Commissioner is authorized to charge such fees to Deposit Account 19-2179.

Respectfully submitted,



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